TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED / ELECTED OFFICE (DO/EO/US) **CONCERNING A FILING UNDER 35 U.S.C. 371**

P67745US0

INTERNATIONAL APPLICATION NO

PCT/FR00/02711

INTERNATIONAL FILING DATE
29 September 2000

29 September 1999

TITLE OF INVENTION

FERTILISER PRODUCT AND METHOD FOR OBTAINING SAME

APPLICANT(S)	FOR	DO/E	OΛ	JS
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Daniel DAVILLER

Applicant herein submits to the United States Designated/Elected Office (DO/EO/US) the following
items and other information.
1. This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.
2. This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.
This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay
examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. A proper Demand for Internatl. Preliminary Examination was made by the 19th month from earliest claimed priority date.
5. A copy of the International Application as filed (35 U.S.C. 371(c)(2))
a is transmitted herewith (required only if not transmitted by the International Bureau).
b. has been transmitted by the International Bureau.
c. is not required, as the application was filed in the United States Receiving Office (RO/US)
6. A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
a. are transmitted herewith (required only if not transmitted by the International Bureau).
b. have been transmitted by the International Bureau.
c. have not been made; however, the time limit for making such amendments has NOT expired.
d. have not been made and will not be made.
8. A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. A translation of the annexes to the Internatl. Preliminary Examination report under PCT Article 36 (35 U.S.C. 371(c)(5)).
Items 11. to 16. below concern other document(s) or information included:
□
T and 3 21 is included.
12. An assignment document for recording. A separate cover sneet compliance with 37 Clark 3.20 and 3.31 is included. 13. A FIRST preliminary amendment.
A SECOND or SUBSEQUENT preliminary amendment.
14. A substitute specification.
45 A shares of power of atterney and/or address letter
16. Other items or information:
International Search Report - EPO
First Page of Publication
International Preliminary Examination Report - with no annexes

ICICICIA Record PCT/PTG, 22 MAR 2002

US APPLICATION NO (if known, see 37 CFR 1 5)		INTERNATIONAL APPLICATION NO			ATTORNEY'S DOCKET NUMBER				
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17. The following fee:	17. Ell The following fees are submitted:								
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No international preliming (a) (2)) but international s	ary examination fee pai search fee paid to USP	id to USPTO (37 CFR TO (37 CFR 1.445(a)	(1.492 (2)) \$740.00						
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	International preliminary examination fee paid to USPTO (37 CFR 1.492 (a) (4)) and all claims satisfied provisions of PCT Article 33(2)-(4) \$100.00								
Search Report prepared	by the EPO or JPO (37	CFR 1.492 (a) (5)) .	\$890.00						
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Daniel DAVILLER

Serial No.: New

Filing Date: March 22, 2002

For: FERTILISER PRODUCT AND METHOD FOR OBTAINING SAME

PRELIMINARY AMENDMENT

Commissioner for Patents Washington, D.C. 20231

Sir:

Prior to initial examination, please amend the aboveidentified application as follows:

IN THE SPECIFICATION

On page 1, immediately following the title, please insert the following sentence: --This is a nationalization of PCT/FR00/02711 filed September 29, 2000 and published in French.--

Please incorporate the new Abstract of the Disclosure into the specification, submitted herewith on a separate sheet.

IN THE CLAIMS

Please amend claim 8 as follows:

8. (amended) A method of obtaining a fertiliser product according to claim 1, characterised in that the quantity of each ingredient in the fertiliser is determined and supplemented by a quantity of

a calcium and magnesium ameliorator comprising lime in which the carbon dioxide content is below 4%< after which the ameliorator followed by the fertiliser ingredients are conveyed to a metering hopper, the hopper is emptied and the contents thereof are placed in a mixer and the product is recovered from the mixer and bagged.

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REMARKS

The foregoing Preliminary Amendment is requested in order to delete the multiple dependent claims and avoid paying the multiple dependent claims fee.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "YERSION WITH MARKINGS TO SHOW CHANGES MADE."

Early action on the merits is respectfully requested.

Respectfully submitted,

JACOBSON HOLMAN PLLC

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Atty. Docket: P67745US0 Date: March 22, 2002 JLS/cmf

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

8. (amended) A method of obtaining a fertiliser product according to claim_1 [any of claims 1 to 8], characterised in that the quantity of each ingredient in the fertiliser is determined and supplemented by a quantity of a calcium and magnesium ameliorator comprising lime in which the carbon dioxide content is below 4%< after which the ameliorator followed by the fertiliser ingredients are conveyed to a metering hopper, the hopper is emptied and the contents thereof are placed in a mixer and the product is recovered from the mixer and bagged.

Abstract

The invention concerns a fertiliser product comprising a liming and magnesium material in oxide form associated with a single, multiple nutrient or complete fertiliser selected among the water soluble potassium-, phosphate- and nitrogen-containing fertilisers with a grain size distribution ranging between 2 and 7 mm. The invention is applicable in agriculture.

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A fertiliser product and a method of making it.

The invention relates to a novel fertiliser product in which calcium and magnesium ameliorators in oxide form are associated with fertilisers chosen for their solubility. The invention also relates to a method of making it.

It will be recalled that an ameliorator is a substance which, when incorporated in the soil, has the effect mainly of improving the physical properties and may also modify the chemical and biological properties thereof. A distinction is usually made between different kinds of ameliorators: calcium and magnesium ameliorators for maintaining or raising the pH and the structure of soil; organic ameliorators for maintaining or raising the proportion of organic matter in the soil; and physical ameliorators for improving the particle size distribution of the soil.

A fertiliser, on the other hand, is an organic or mineral product which provides plants with fertilising substances of direct nutritional use.

At present, a change is occurring in agriculture in that the farmer wishes to reduce the number of applications by supplying the maximum amount of products in a single operation. To date, however, ameliorators are still too often supplied separately from fertilisers.

One aim of the invention, therefore, is to provide a product wherein calcium and magnesium ameliorators in oxide form can be associated with fertilisers chosen for their solubility, such that an ameliorator and a fertiliser are simultaneously supplied to a soil.

Another aim of the invention is to provide a said product which does not form a cloud of dust when used.

The invention also relates to a method of making a said product so as to avoid dust formation when the product is used or made.

Dust formation, during production or use of a substance such as an ameliorator or a fertiliser, is a major disadvantage in that, as a result, constituents of the product are lost and/or are supplied to areas not under cultivation.

These aims, together with others which will appear hereinafter, are achieved by a product which, according to the invention, is characterised in that it comprises a calcium and magnesium ameliorator associated with a single, binary or ternary fertiliser and has a particle size distribution in the range from 2 to 7 mm.

The calcium and magnesium ameliorator comprises lime having a carbon dioxide (CO_2) content below 4%. The product also contains up to 20% by weight of magnesium lime and at least 20% by weight of quicklime (CaO)

The fertiliser is chosen from among water-soluble potassium, sulphate and nitrogen fertilisers. More particularly, it can comprise a tri super phosphate, and/or a potassium chloride and/or a diammonium phosphate.

Accordingly the fertiliser comprises ingredients or elements in the form of granulates, preferably

- tri super phosphate (TSP), a phosphate fertiliser containing 45% by weight of P_2O_5 in the form of monocalcium phosphate and of recognised solubility in water and ammonium citrate;
- potassium chloride (KCl), a potassium fertiliser containing 60% by weight of K_2O in the form of potassium chloride and also considered soluble in water, and
- diammonium phosphate (DAP), a soluble phosphate fertiliser containing 46% by weight of P₂O₅ in the form of HPO₄- (orthophosphoric ion) and 18% nitrogen in ammoniacal form. This form of nitrogen is preferred because of its neutrality in the presence of lime and its high solubility in water

A product in accordance with the invention is constructed by determining the composition by weight of the various constituents, it being understood that the quantity of calcium and magnesium ameliorator makes up the balance per tonne of product.

The calcium and magnesium ameliorator, followed by the other ingredients, are first placed on the edge of a metering hopper such that the particles run along the hopper wall. This prevents a cone forming at the centre of the hopper, and also avoids dust and consequent loss of ameliorator and/or ingredients. The various ingredients and the ameliorator are carried on conveyor belts or, preferably, horizontal vibrating slides. The process is designed to reduce crumbling of supplied fertiliser and thus reduce the production of fine particles, that is 2-7 mm particles of calcium and magnesium ameliorators in oxide form.

Next, the contents of the hopper is emptied on to the end of a conveyor line, the other end of which is situated at a certain distance and height relative to the mouth of a mixer drum whose axis of rotation is at an angle to the horizontal. For example, the distance between the bottom of the drum and the free end of the conveyor line is about 3 m and the height of the slide in the bottom of the drum is

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between 1.5 and 1.7 m approx., when the conveyor line is advancing at around 2.95 m/s.

As a further dust- preventing means, a protective product can be sprayed when the mixture is placed in the drum.

Next, the various ingredients and the ameliorator are mixed by rotating the drum in alternate directions, for example at a speed of rotation of about 11.5 rpm for a total of 1.5 minutes.

The drum is emptied and the resulting mixture of granulates is conveyed to a bagging machine.

The end product obtained by the method and in accordance with the invention is novel and gives very promising results after spreading, as can be seen from the following tests.

Test no. 1:

On temporary grassland during a first year, a comparison was made between plots given a calcium ameliorator (A), a phospho-potassium fertiliser (B), and a product in accordance with the invention (C) having the various compositions shown in Table 1 hereinafter:

		Ta	ble 1	
Supplied (units/ha)	N	Р	K	CaO
Control	200	-	_	-
Α	200	-	-	344
В	200	64	176	-
С	200	64	176	344

Fig. 1 shows the yield per tonne of dry matter from two cuts of grass made during the said first year. As shown by Fig. 1 and Table II summarising the results, the product (C) in accordance with the invention gave a yield somewhat higher than that calculated.

Table II

	Control		Α	В	С
Yield T of dry matter per ha % increase relative to	5.87		6.40	6.76	7.27
control	_	9%		15.2%	23.9%

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Test no. 2

On the same temporary grassland, during a second year, a repeat comparison was made between plots newly spread with a calcium ameliorator (A), a phospho-potassium fertiliser (B), and a product (C) in accordance with the invention having compositions identical with those in test no. 1 hereinbefore.

Fig. 2 shows the yield in tonnes of dry matter from two cuts of grass made during the second year. As shown very clearly by the Figure and Table III summarising the results, the product (C) gave a yield much higher than that calculated. There is therefore a synergistic effect when an ameliorator in oxide form and a phospho-potassium fertiliser are supplied in a single product such as that in accordance with the invention.

Table I	ı	ı	
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	Control	Α	В	С
Yield T of dry matter per ha % increase relative to the	5.03	5.42	6.13-	6.64
control	-	7.7%	21.9%	32%

All these tests were made by the method of blocks with 4 repetitions.

Claims:

- 1. A fertiliser product, characterised in that it comprises a calcium and magnesium ameliorator containing not more than 20% by weight of magnesium lime and at least 20% by weight of quicklime (CaO) associated with a single, binary or ternary fertiliser and having a particle size distribution in the range from 2 to 7 mm.
- 2. A fertiliser product according to claim 1, characterised in that the calcium and magnesium ameliorator contains lime having a carbon dioxide (CO₂) content below 4%.
- 3. A fertiliser product according to claim 1, characterised in that the fertiliser is chosen from among water-soluble potassium, phosphate and nitrogen fertilisers.
- 4. A fertiliser product according to claim 4, characterised in that the fertiliser can comprise a tri super phosphate and/or a potassium chloride and / or a diammonium phosphate.
- 5. A fertiliser product according to claim 5, characterised in that the tri super phosphate (TSP) contains 45% by weight of P_2O_5 in the form of monocalcium phosphate.
- 6. A fertiliser product according to claim 5, characterised in that the potassium chloride (KCl) contains 60% by weight of K₂O in the form of potassium chloride.
- 7. A fertiliser product according to claim 1, characterised in that the diammonium phosphate (DAP) contains 46% by weight of P_2O_5 in the form HPO₄- and also contains 18. 5% nitrogen in ammoniacal form.
- 8. A method of obtaining a fertiliser product according to any of claims 1 to 8, characterised in that the quantity of each ingredient in the fertiliser is determined and supplemented by a quantity of a calcium and magnesium ameliorator comprising lime in which the carbon dioxide content is below 4%< after which the ameliorator followed by the fertiliser ingredients are conveyed to a metering hopper, the hopper is emptied and the contents thereof are placed in a mixer and the product is recovered from the mixer and bagged.

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En ce qui concerne les codes à deux lettres et autres abréviations, se référer aux "Notes explicatives relatives aux codes et abréviations" figurant au début de chaque numéro ordinaire de la Gazette du PCT.

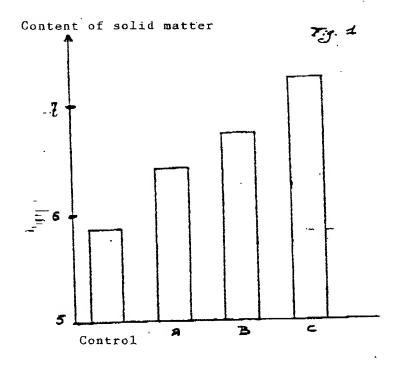
(54) Title: FERTILISER PRODUCT AND METHOD FOR OBTAINING SAME

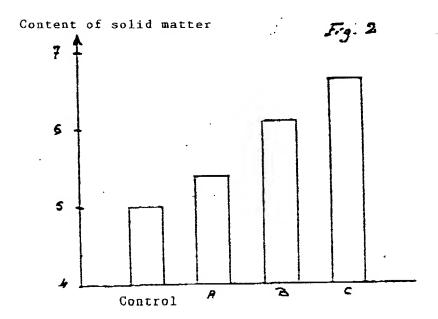
(54) Titre: PRODUIT FERTILISANT ET PROCEDE POUR SON OBTENTION

(57) Abstract: The invention concerns a fertiliser product comprising a liming and magnesium material in oxide form associated with a single, multiple nutrient or complete fertiliser selected among the water soluble potassium-, phosphate- and nitrogen-containing fertilisers with a grain size distribution ranging between 2 and 7 mm. The invention is applicable in agriculture.

(57) Abrégé: Produit fertilisant comprenant un amendement calcique et magnésien sous forme oxyde associé à un engrais simple, binaire ou ternaire choisi parmi les engrais potassiques, phosphatés et azotés qui sont solubles dans l'eau, et présentant une granulométrie comprise entre 2 et 7 mm. Application en agriculture.







AND POWER OF ATTORNEY U.S.A.

ALL PATENTS, INCLUDING DESIGN FOR APPLICATION BASED ON PCT; PARIS CONVENTION; NON PRIORITY; OR PROVISIONAL APPLICATIONS

DECLARATION IL DE PROPATTORNEYS USE ONLY IN LIE ATTORNEYS' DOCKET NO. 5674/P67745ÛSO

As a below named inventor, I declare that my residence, post office address and citizenship are slated below next to my name, the information given herein is true, that I believe that I am the original, first and sole inventor (if only one name is listed at 201 below), or an original, first and joint inventor (if plural inventors are named below at 201-203, or on additional sheets attached hereto) of the subject

19		aimed and for which patent i ser product	-		btaining same						· · · ·	,
102	which is describe		the spec	rnational Application	on Serial No.		2711		filed		September	2000
	I acknowledge the I hereby claim for	e duty to disclose information eign priority benefits under 1	stand the conte n which is mate Title 35, United	nal to patentability a States Code, §119	ed on entified specification, including as defined in Title 37, Code of F (a)-(d) of any foreign application hat of the application on which	Feder	ral Regulations, §1 5 for patent or inventor	6.				i below any
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	(Number)		(Coun	try)	(D	Day/M	lonth/Year Filed)			Yes	No	
5	I hereby claim the	benefit under Title 35, Unit	ed States Code	.§119(e) of any Uni	ted States provisional application	ion(s)	listed below:					
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